Application No. 10/635,864 Docket No. 1999U026.US-CON3 Reply to Office Action Dated September 15, 2005

## Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

- 1. (Currently amended) A bimodal polyethylene copolymer comprising ethylene derived units and units derived from at least one of a C<sub>4</sub> to C<sub>12</sub> olefin; wherein the polyethylene has a density of from 0.940 to 0.970 g/cm<sup>3</sup>; an I<sub>21</sub>/I<sub>2</sub> of 80 or more; a residual Group 4 metal content of 2.0 ppm or less; a Mw/Mn of from 20 to 60; and wherein the polyethylene comprises a high molecular weight component and a low molecular weight component, the high molecular weight component present from 40 to 60 weight percent based on the total polyethylene, and wherein the bimodal polyethylene has a weight average molecular weight Mw of 180,000 a.m.u. or more.
- (Original) The bimodal polyethylene of Claim 1, possessing an I<sub>2</sub> of 0.5 g/ 10 min or less.
- 3. (Previously presented) The bimodal polyethylene of Claim 1, wherein the weight average molecular weight Mw of the bimodal polyethylene is 200,000 or more.
- 4. (Original) The bimodal polyethylene of Claim 1, wherein the weight average molecular weight Mw of the high molecular weight component is greater than 200,000 a.m.u.
- 5. (Original) The bimodal polyethylene of Claim 1, wherein the Group 4 metal residuals content is 1.8 ppm or less.
- 6. (Original) The bimodal polyethylene of Claim 1, wherein the value of  $l_{21}/l_2$  is greater than 90.

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- 7. (Original) The bimodal polyethylene of Claim 1, possessing a notch tensile test result of greater than 150 hours at 3.0MPa.
- 8. (Original) The bimodal polyethylene of Claim 1, wherein a pipe with carbon black formed from the polyethylene is able to withstand at least 50 years at an ambient temperature of 20°C, using water as the internal test medium and either water or air as the outside environment (Hydrostatic (hoop) stress as measured by ISO TR 9080).
- (Original) The bimodal polyethylene of Claim 1, wherein a pipe with carbon black formed from the polyethylene possesses a predicted S-4 T<sub>c</sub> for 110mm pipe of less than -5°C (ISO DIS 13477/ASTM F1589).
- (Original) The bimodal polyethylene of Claim 1, wherein a pipe with carbon black formed from the polyethylene possesses a predicted S-4 T<sub>c</sub> for 110mm pipe of less than 15°C (ISO DIS 13477/ASTM F1589).
- (Original) The bimodal polyethylene of Claim 1, wherein when formed into a 0.5mil
  (13μ) film possesses an MD Tear of between about 5 g/mil and 25 g/mil.
- (Original) The bimodal polyethylene of Claim 1, wherein when formed into a 0.5mil
  (13μ) film possesses an MD Tear of between about 15 g/mil and 25 g/mil.
- 13. (Original) The bimodal polyethylene of Claim 1 formed in a single reactor by contacting olefins and a catalyst composition comprising a Group 15 containing compound and a bulky ligand metallocene catalyst compound; wherein the Group 15 containing metal compound is represented by the formulae:

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$$R^3$$
  $L$   $R^4$   $R^6$   $R^6$   $R^3$   $R^2$   $Z$   $R^7$  or

wherein M is a Group 4, 5 or 6 metal; each X is independently a leaving group;

y is 0 or 1;

n is the oxidation state of M;

m is the formal charge of the ligand comprising the YZL or YZL' groups;

L is a Group 15 or 16 element;

L' is a Group 15 or 16 element or Group 14 containing group;

Y is a Group 15 element;

Z is a Group 15 element;

R<sup>1</sup> and R<sup>2</sup> are independently a C<sub>1</sub> to C<sub>20</sub> hydrocarbon group, a heteroatom containing group having up to twenty carbon atoms, silicon, germanium, tin, lead, or phosphorus; wherein R<sup>1</sup> and R<sup>2</sup> may be interconnected to each other;

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- R<sup>3</sup> is absent or a hydrocarbon group, hydrogen, a halogen, a heteroatom containing
- R<sup>4</sup> and R<sup>5</sup> are independently an alkyl group, an aryl group, substituted aryl group, a cyclic alkyl group, a substituted cyclic alkyl group, a cyclic arylalkyl group, a substituted cyclic arylalkyl group or multiple ring system; wherein R<sup>4</sup> and R<sup>5</sup> may be interconnected to each other;
- R<sup>6</sup> and R<sup>7</sup> are independently absent, or hydrogen, an alkyl group, halogen, heteroatom or a hydrocarbyl group; and
- R is absent, or is hydrogen, a Group 14 atom containing group, a halogen, a heteroatom containing group.